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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/550,271	09/23/2005	Hiroyasu Yumura	017700-0177	1269

22428 7590 07/27/2007  
FOLEY AND LARDNER LLP  
SUITE 500  
3000 K STREET NW  
WASHINGTON, DC 20007

EXAMINER
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SOON, SHELDON STEWART

ART UNIT	PAPER NUMBER
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2841

MAIL DATE	DELIVERY MODE
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07/27/2007

PAPER

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

<b>Office Action Summary</b>	<b>Application No.</b> 10/550,271	<b>Applicant(s)</b> YUMURA ET AL.	
	<b>Examiner</b> Sheldon S. Soon	<b>Art Unit</b> 2841	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

#### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

#### Status

- 1) ☒ Responsive to communication(s) filed on 04 June 2007.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

#### Disposition of Claims

- 4) ☒ Claim(s) 1,3,4 and 8 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1,3,4 and 8 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

#### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

#### Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some \* c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

#### Attachment(s)

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)                                | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)                       | 5) <input type="checkbox"/> Notice of Informal Patent Application                       |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)<br>Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____  |

## **DETAILED ACTION**

### ***Claim Objections***

Claim 4 is objected to because of the following informalities: The claim discloses, "The superconducting cable according to claim 3, include further comprising a wire insulating layers around their outer circumferences", but does not clearly state what, "their", refers to and states, "a wire insulating layers" which disagrees in plurality. For the purpose of this action, the examiner presumes the claim reads, "The superconducting cable according to claim 3, include further comprising a wire insulating layer around the wires' outer circumferences". Appropriate correction is required.

### ***Claim Rejections - 35 USC § 102***

1. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

2. Claim 1 is are rejected under 35 U.S.C. 102(b) as being anticipated by Snowden et al (US Patent 3,612,742) herein referred to as Snowden.

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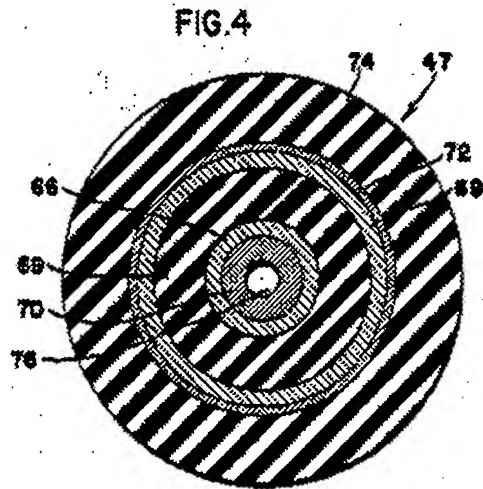
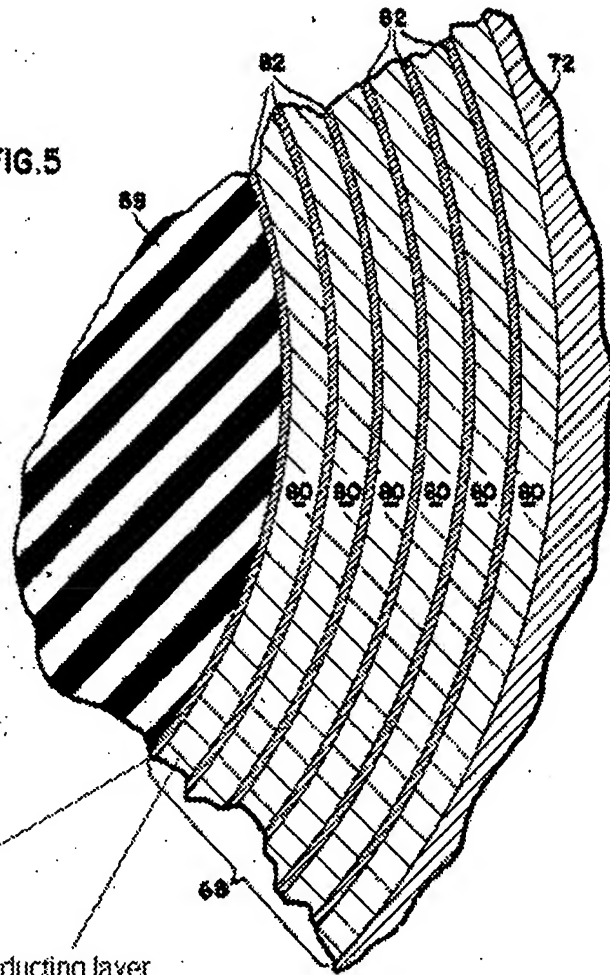


FIG. 5



Figures 4 and 5  
taken from Snowden

normal conducting layer

superconducting layer

Regarding claim 1 – Snowden discloses all the elements of the instant invention including: a former made of a normal-conducting metal (item 70, column 5 line 71); a first superconducting layer (item 66, column 4 lines 58-59) formed around the outer circumference of said former and in electrical communication with the former (figure 4 shows them to be in direct contact with no intermediate layer); an electric insulating layer (item 69, column 4 line 1) formed around the outer circumference of said first superconducting layer; a second superconducting layer (item 80, column 4 lines 68-69) formed around the

outer circumference of said electric insulating layer; and  
a normal-conducting metal layer (item 82, column 4 lines 64-66) formed between said electric insulating layer and said second superconducting layer;  
wherein said first and second superconducting layers are in a state cooled by a refrigerant (as disclosed in column 4 line 56).

***Claim Rejections - 35 USC § 103***

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 3 and 4 are rejected under 35 U.S.C. 103(a) as being unpatentable over Snowden in view of Perez (U S PG PUB 2004/0020683) herein referred to as Perez.

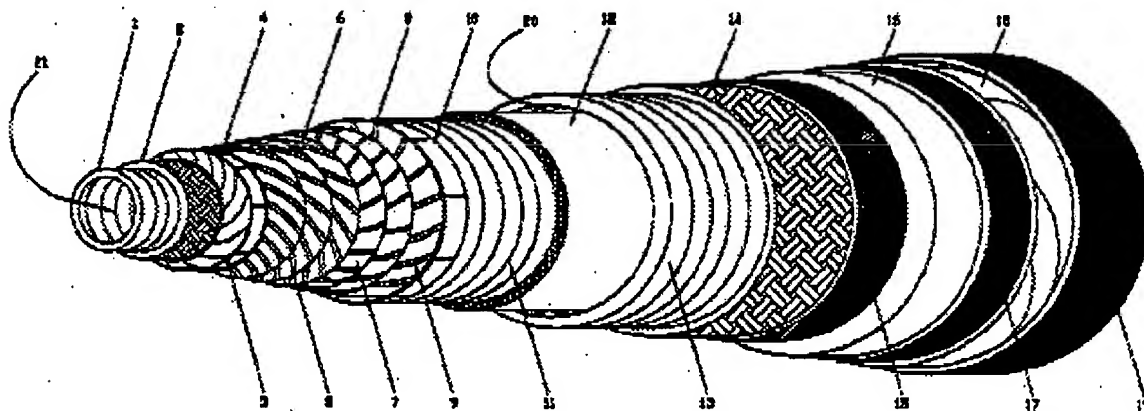


Figure 1 taken from Perez

Regarding claim 3 - Snowden discloses all the elements of claim 1 but fails to disclose: the normal-conducting metal layer is formed by winding round wires with a round cross section or tape-shaped wires formed from a normal-conducting metal. Perez teaches

the use of a layer of wrapped copper tape (item 3 in figure 1). It would have been obvious to someone of ordinary skill in the art at the time of the invention to use the wrapped conducting tape method of Perez in the cable of Snowden since it was known to be an economical method in lieu of other methods (i.e. sputtering, vapor deposition, electroplating, ect.).

Regarding claim 4 - Snowden in view of Perez discloses all the elements of claim 3 and further discloses: a wire insulating layer (item 74 in figure 4 of Snowden, column 4 lines 44-45) around the wires' outer circumferences.

4. Claim 8 is rejected under 35 U.S.C. 103(a) as being unpatentable over Snowden in view of The Big Chill (New Scientist article, Oct. 13, 2001).

Snowden discloses all the elements of claim 1 but fails to disclose: the superconducting wires have a matrix ratio within a range between 1.5 or more and 3.0 or less. The article, "The Big Chill" teaches the superconductor tapes are 70 percent silver. When calculated as a ratio, 70 percent is 2.33. It would have been obvious to someone of ordinary skill in the art at the time of the invention to use a silver matrix ratio between 1.5 and 3.0 since The Big Chill states, "The superconductor tapes are 70 per cent silver, which is needed to bind its constituent materials together".

### ***Response to Arguments***

5. Applicant's arguments with respect to claim 1 have been considered but are moot in view of the new ground(s) of rejection.

Upon closer examination of the prior art of Snowden, the superconducting layer shown as item 68 is further disclosed as several thinner layers of which the inner most layer is

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disclosed as a normal conductor with the next outer layer being a superconductor.

Such structure completely anticipates the applicant's invention thereby rendering the previous 35 U.S.C. 103 rejection moot.

### ***Conclusion***

6. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

The Big Chill, published in, The New Scientist, Oct. 13, 2001 by Paul Grant.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Sheldon S. Soon whose telephone number is 571-272-9092. The examiner can normally be reached on Monday through Friday 8:30-5:00 est.


If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Dean A. Reichard can be reached on 571-272-2800, ex. 31. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

Sheldon S Soon  
Examiner  
Art Unit 2841

SSS

  
DEAN A. REICHARD  
SUPERVISORY PATENT EXAMINER 7/20/07  
TECHNOLOGY CENTER 2800